

**Quest Review:****Relative speed / frame of reference**

When do you add the speed to determine the relative speed?

When do you subtract the speeds to determine the relative speed?

When is the actual speed the relative speed?

Try these problems on your own!

A duck swimming in a straight line toward shore has a velocity of 0.5 m/s. After 4 s, its velocity is 1.3 m/s. What is the duck's acceleration?

A rabbit is hopping away from a dog. They are both headed North, the rabbit hopping at 3 m/s and the dog running at 2.6 m/s.

-What is the speed of the dog relative to the rabbit.

-A person is driving South on the street towards the rabbit and the dog. The person is driving at 10 m/s. What is the speed of the person driving relative to the rabbit?

**Newton's second law of motion ---  $F=ma$** 

Understand the relationship between force, mass and acceleration.

If mass increases, acceleration \_\_\_\_\_

If force increases acceleration \_\_\_\_\_

What is acceleration? How do you calculate acceleration? (equation)

At the beginning of the year we said that if an object is in constant motion it will stay in constant motion unless a net force acts on it..... we know that if we roll a bowling ball it will eventually stop, this is because of a net force on the bowling ball which is known as \_\_\_\_\_. Review your notes on Friction.

**Try these on your own:**

- As she climbs a hill, a cyclist slows down from 25 m/s to 6m/s in 8 s. What is her acceleration?

**PHYSICAL SCIENCE**

Name \_\_\_\_\_

DSHS

Mrs. Ellis

- A helicopter's speed increases from 25 m/s to 60 m/s in 5 seconds. What is the acceleration of this helicopter?
- While traveling along a highway a driver slows from 24 m/s to 15 m/s in 12 seconds. What is the automobile's acceleration?
- A parachute on a racing dragster opens and changes the velocity of the car from 85 m/s to 45 m/s in a period of 4.5 seconds. What is the acceleration of the dragster?

**Newton's third law of motion says:****For every action there is an \_\_\_\_\_ and \_\_\_\_\_ reaction.**

If you are leaning against the counter, you are exerting a force of 4 N on the counter. If there a force being exerted back on you? If so what it the magnitude of that force?

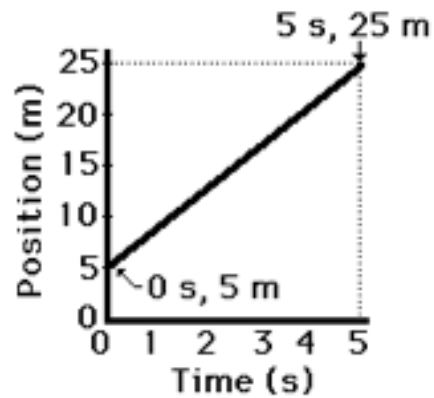
If you were sitting on a skateboard right next to the wall, and you pushed on the wall, what would the wall do to you?

If a book is sitting on the counter at rest, the book is exerting a downwards force on the counter, the counter is exerting an upwards force on the book. A force from on object acting on another, is met by an equal and opposite force. This is called a \_\_\_\_\_ force.

**KNOW YOUR GRAPHING! Draw a velocity versus time graph from the position versus time graph -- draw and acceleration versus time graph from that velocity versus time graph for the following 2 graphs**

**PHYSICAL SCIENCE**

Name \_\_\_\_\_

DSHS  
Mrs. Ellis

The slope on a position versus time graph is equal to the objects \_\_\_\_\_

Negative slope - \_\_\_\_\_ Positive Slope- \_\_\_\_\_

Changing slope - \_\_\_\_\_ Gradual to steep- \_\_\_\_\_ Steep to gradual- \_\_\_\_\_

The slope on a velocity versus time graph is equal to the objects \_\_\_\_\_

If the slope on a velocity versus time graph is 0, then the object is or is not (circle one) experiencing an acceleration.